

CLAIM AMENDMENTS

1. (Currently Amended) A method of demultiplexing a statistically multiplexed MPEG transport stream into a constant bit rate single program transport stream comprising the steps of:

separating a variable bit rate program composed of a sequence of pictures, each having a decode time stamp, from the statistically multiplexed MPEG transport stream;

loading a picture from the variable bit rate program at a rate that does not exceed a desired constant bit rate into a smoothing an MPEG decoder buffer, the loading commencing a specified amount of time prior to the time indicated by the picture's decode time stamp; and

transferring the picture from the smoothing MPEG decoder buffer at the time indicated by the picture's decode time stamp.

2. (Currently Amended) The method as recited in claim 1 further comprising the step of replacing B-type pictures at the input to the smoothing MPEG decoder buffer with null B-type pictures when the smoothing MPEG decoder buffer is in an overflow condition until the overflow condition ceases.

3. (Currently Amended) A method as recited in claim 1 wherein, in the event a picture can not be loaded into the smoothing MPEG decoder buffer the specified amount of time prior to the time indicated by the picture's decode time stamp, it is loaded into the smoothing MPEG decoder buffer as soon as possible thereafter.

4. (Currently Amended) A method of demultiplexing a multiplexed encoded rate shaping a video transport stream from a variable bit rate, having a maximum bit rate of N, into a constant bit rate, having a bit rate of less than N, the video transport stream being composed of a sequence of pictures and the method into a constant bit rate single program encoded transport stream comprising the steps of:

separating a variable bit rate program composed of a sequence of pictures, each picture having sequentially reading a decode time stamp, from each picture of the multiplexed encoded video transport stream,

loading the pictures into a smoothing buffer at a rate that does not exceed a desired constant bit rate, and buffer, and

~~transferring the picture from the smoothing buffer at the times indicated by the picture's respective decode time stamp, to a decoder buffer at a rate that does not exceed the constant bit rate.~~

wherein if a picture of said sequence becomes available is loaded into the smoothing buffer no later than a specified amount of time prior to said picture's decode time stamp, then said picture is loaded into transferred from the smoothing buffer commencing the specified amount of time prior to the time indicated by the picture's decode time stamp, stamp, and

if a picture of said sequence becomes available is loaded into the smoothing buffer later than the specified amount of time prior to said picture's decode time stamp, then said picture is loaded into the transferring of said picture from the smoothing buffer commences as soon as possible.

5. (New) A method according to claim 4, wherein the decode time stamps are periodic, at a period P , the desired CBR is R , a first picture of said sequence of pictures comprises X bits and commences transferring to said decoder buffer at said specified amount of time prior to the first picture's decode time stamp, and an immediately succeeding second picture commences transferring either at said specified amount of time prior to said second picture's decode time stamp, if X is less than $R*P$, or as soon as the loading of said first picture is completed, if X is greater than or equal to $R*P$.

6. (New) A method according to claim 1, wherein the specified amount of time is proportional to a minimum acceptable size of said MPEG decoder buffer and inversely proportional to said desired constant bit rate.

7. (New) A method according to claim 3, wherein the decode time stamps are periodic, at a period P , the desired constant bit rate is R , a first picture of said sequence comprises X bits and commences loading at said specified amount of time prior to the first picture's decode time stamp, and an immediately succeeding second picture commences loading either at said specified amount of time prior to said second picture's decode time stamp, if X is less than $R*P$, or as

soon as the loading of said first picture is completed, if X is greater than or equal to R*P.

8. (New) A method of rate shaping a video transport stream from a variable bit rate (VBR) having a maximum bit rate of N, to a constant bit rate (CBR) of M, M being less than N, the video transport stream having an embedded clock signal and the method comprising:

receiving a packet of said video transport stream at said VBR,
comparing a decode time of a picture associated with a first value of current time, and, if said decode time is no greater than T,
transmitting said packet at said CBR, and otherwise
storing said packet until the amount of time between a second value of current time and said decode time is no greater than T, then transmitting said packet at said CBR, and
wherein T is a function of M and a minimum acceptable size of a downstream decoder buffer and said decode time and said first and second values of current time are relative to said embedded clock signal.

9. (New) A method according to claim 8, further comprising determining a decode time of said picture, wherein said picture has an associated decode time stamp (DTS) in said video transport stream, and said decode time of said picture is determined by reading said picture's DTS from said video transport stream.